

What is claimed is:

1. A Japanese letter input method of inputting letters in a letter set used in a Japanese letter input device, the method comprising the steps of:

prearranging predetermined letters and symbols in a matrix array of M columns and N rows; and

inputting any desired letter or symbol by designating corresponding column and row coordinates in a predetermined order with a position input means.

2. The Japanese letter input method according to claim 1, wherein the letter set is obtained by arranging kana letters in the 50-letter set in a matrix array of columns and rows, the columns each consisting of letters assigned by the same consonant, the rows each consisting of letters of the same vowel, the symbols including the consonant mark and the p-sound mark.

3. The Japanese letter input method according to claim 1, wherein the letter set is formed by arranging romaji alphabet letters, numerals and symbols in columns and rows.

4. A Japanese letter input device for a portable terminal comprising:

a direction designation unit having a plurality of (i.e., m) direction designation positions uniformly spaced apart in a circle with the consonant at a reference

position and having a predetermined radius, the direction designation unit including a pointer capable of being moved from the reference position radially in a two-dimensional plane and then circumferentially and then returned to the reference position, the direction designation unit being capable of detecting a first direction designation position, which the pointer is first radially moved to, and a second direction designation position, which the pointer is located at before being moved circumferentially and then returned to the reference position, and outputting position data of the detected direction designation position;

a data processing unit for generating letter codes from the position data outputted from the direction designation unit by using a memory means with a letter set stored therein; and

a display unit displaying the letter modes generated at the data processing unit.

5. The Japanese letter input device for a portable terminal according to claim 4, which further comprises a buffer for temporarily storing input data of the direction designation unit.

6. The Japanese letter input device for a portable terminal according to claim 4, in which a plurality of letter sets are stored, and which further comprises a means for selecting each of the letter sets.

7. The Japanese letter input device for a portable terminal according to claim 6, wherein one of the letter sets is in the form of an M-column N-row matrix array obtained by arranging kana letters in the 50-letter set in a matrix array of columns and rows, the columns each consisting of letters assigned by the same consonant, the rows consisting of letters of the same level, and symbols including the consonant mark and the p-sound mark, direction designation positions being each allotted to each row of the letter set.

8. The Japanese letter input device for a portable terminal according to claim 6, wherein one of the letter sets is obtained by arranging romaji alphabet letters, numerals and symbols in M columns and N rows.

9. The Japanese letter input device for a portable terminal according to claim 4, wherein the data processing unit selects a row of the letter set corresponding to the first direction designating position represented by the position data outputted from the direction designation unit.

10. The Japanese letter input device for a portable terminal according to claim 9, wherein the data processing unit detects, upon reception of the position data representing the second direction designation position

from the direction designation unit, an interval of circumferential movement of the pointer from the difference between this position data and the previously received position data representing the first direction designation position, selects a row of the letter set, and outputs, upon reception of a determination signal, a code of a particular letter or symbol in the letter set by combining the selected column and row of the letter set.

11. The Japanese letter input device for a portable terminal according to claim 10, wherein the direction designation unit continuously outputs position data during movement of the pointer, and the data processing unit causes, upon reception of the position data of the first direction designation position, a code representing a row of the letter set corresponding to the first direction designation position, for instance the first column letter in the same row, to be displayed on the display unit, causes, after determination of the displayed row of the letter set, letters representing columns determined by intervals of movement of the pointer to be successively displayed on the display unit, and outputs, upon determination of a displayed letter, a signal representing the same displayed letter.

12. The Japanese letter input device according to claim 4, wherein the data processing unit causes, while the pointer is circumferentially moved in a predetermined

direction after starting movement from the reference position and reaching the first direction designation position, causes such row selection mode indication as to cause letters representing rows of the letter set corresponding to relayed direction designating positions to be successively displayed on the display unit, determines, when the pointer is once stopped and then turns to be moved in the reverse direction, a row of the letter set corresponding to the direction designation position, which the pointer is once stopped at, while also deciding that a row selection mode has been set up and causing successive display of letters representing rows corresponding to intervals of movement of the pointer, decides, when the pointer is returned to the reference position, that the prevailing displayed row has been determined, thus outputting a signal of a letter corresponding to the determined column and row.

13. The Japanese letter input device for a portable terminal according to claim 4, wherein the direction designation unit includes a determining switch for informing, when the first and second direction designation positions and the combination thereof are determined while the pointer is moved, the determination to the data processing unit.

14. The Japanese letter input device for a portable terminal according to claim 4, wherein the direction

designation unit includes a pointer mechanism having a plurality of direction designation positions uniformly spaced apart on two concentric circles, the pointer mechanism being capable of detecting each of the direction designation positions stepwise when tilted from a center position in radial direction.

15. The Japanese letter input unit for a portable terminal according to claim 14, wherein the direction designation unit is capable of being switched between a column input mode and a row input mode in dependence on two different tilting angles, effects column input when tilted by small angle, effects row input when tilted by large angle, effects column determination when tilted to the large angle during the column selection in the small angle tilted state, effects row selection when tilted to the large angle once again, effects row determination when subsequently returned to the center position, and effects input of a Japanese kana letter by combining the determined column and row.

16. The Japanese letter input device according to claim 15, wherein the direction designation unit inputs a consonant of the Japanese kana letter set at the time of the column input, and inputs a vowel of the Japanese kana letter set at the time of the row input.

17. The Japanese letter input device according to

claim 15, wherein the direction designation unit inputs letters in a romaji alphabet letter set at the time of the column input, and inputs the orders of the inputted letters at the time of the row input.

18. The Japanese letter input device for a portable terminal according to claim 4, which further comprises a button or like switch for switching a letter input operation and a cursor operation of the direction designation unit over to each other.

19. The Japanese letter input device for a portable operation according to claim 18, wherein the direction designation can be switched to set up a cursor movement mode and a display scroll mode in dependence on angles of tilting it when used for the cursor operation, the cursor movement mode being set up by tilting the unit by small angle, the display scroll mode being set up by tilting the unit by large angle.

20. The Japanese letter input device for a portable terminal according to claim 19, wherein when the direction designation unit is used for the cursor operation, the extent of movement of cursor is changed according to the tilting angle of the pointer for inputting commands concerning the display operation.

21. The Japanese letter input device for a portable

terminal according to claim 15, wherein the direction designation unit includes an elastic member to let a tilting angle of the pointer be known with a feel of click.

22. The Japanese letter input device according to claim 21, wherein the direction designation unit has a structure that the user is given a feel of click whenever the pointer being circumferentially moved reaches a direction designation position.

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